

**ABSTRACT**

A hardening apparatus (10), comprising a heating zone(20) induction heating coiled members(12) to a hardening temperature and cooling zone(30) rapidly cooling the coiled members (12) induction heated to the hardening temperature. A carrying route(22) for carrying the coiled members (12) in the direction of arrow A(carrying direction )while the coiled members are rotating and an induction heating coil(24) for induction heating the coiled members(12) being carried on the carrying route(22) while the coiled members are rotating are disposed in the heating zone(20). The large number of coiled members(12) are placed on the carrying route(22) at specified intervals so that the longitudinal direction thereof crosses the carrying direction and carried continuously. While the coiled members (12) are carried, the coiled members (12) are rotated in the outer peripheral direction thereof on the carrying route (22)